

THE INTIMATE FRIENDSHIP SCALE: FACTORS AND ASSOCIATION WITH
DRINKING PATTERNS AMONG COLLEGE AGED FRIENDS.

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A Thesis Submitted to the
University of North Carolina Wilmington in Partial Fulfillment
of the Requirements for the Degree of
Masters of Arts

Department of Psychology
The University of North Carolina Wilmington

2008

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ABSTRACT

The purpose of the present study was to examine the development of the Intimate Friendship Scale (IFS), a 32 item self-report measure of close friendship initially developed using adolescent Kibbutz children. Investigations of the structure of friendship are useful for advancing knowledge of what dimensions influence drinking patterns among friend dyads in college. Sharabany has proposed an eight-factor model of friendship and her questionnaire items are widely used but their latent structure and factorial validity remains contentious. Three Studies examined the internal validity of the Intimate Friendship Scale using college-aged students ($N = 762$). A two-factor model of friendship was found to fit the data the best. The two factors were theoretically described as characteristic of either Intimate or Instrumental friendship. Study 4 uses these two factors and examines the drinking patterns among friendship dyads in college. Results indicate that friends that rated themselves higher on the Intimate subscale items had higher odds of drinking with their friend. However, there was no association between scores on the Instrumental subscale and the likelihood of shared drinking occasions. Further, when examining individual differences in drinking patterns between friends, it was found that there were no significant relationships between the subscales and discrepancies in friends' individual differences in alcohol use in terms of how often, how much, or the number of days that the partner drank alcohol (with or without the friend). These findings further emphasize the complex nature of friendship and its association with alcohol use in college. Further research should aim towards developing a multidimensional friendship measure and longitudinal studies that evaluate the relationship between friendship and alcohol use in college.

ACKNOWLEDGEMENTS

I would like to thank the members of my committee, Dr. Nora Noel, Dr. Bryan Myers, and Dr. Len Lecci for their excellent guidance, support, and time. Their input helped me a great deal with my study, and I am very grateful to all of them for their time. I would especially like to thank Dr. Nora Noel for her invaluable mentorship and for the countless hours of time and energy that she has contributed to my well being and research efforts during the past two years. Her encouragement and positive attitude has helped me grow not only as a researcher but also as a person.

I would also like to deeply thank the various research assistants who, during the years in which this endeavor lasted, provided me with useful and helpful support. Without their care and consideration, this project would likely not have matured.

Thank you especially to my family: Mom, Denny, and Corbin. Your love and support has carried me throughout all of these years. You are my heart. You have been with me from the start.

Finally, in the words of Napoleon Hill I would like to recognize Divine Providence. “O Divine Providence, thank you for the wisdom to make wise use of the riches you gave me at birth, consisting in the power to control and direct my own mind to whatever ends I might desire.”

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INTRODUCTION

Past researchers have documented how we as humans have an innate need to belong (Baumeister & Bushman, 2008). Friendship is an important way that individuals fulfill this need. Despite the fact that people use the term friendship in everyday context with relative ease, there are many different understandings and ideas about friendship. There is also considerable variation in the quality and features of relationships that people classify as friendships. This phenomenon leads to a wide range of friendships that vary in contact frequency, length, intimacy, and many other dimensions. The dissimilarity between how individuals perceive friendship makes it a topic that is difficult to operationally define.

Researchers have approached this difficulty in different ways. In some studies, researchers place limitations on participants and set criteria that must be met in order to be considered a friend (Knapp & Harwood (same-sex only), 1997; Parker & Asher, 1993 (mutually selected friends only). This approach to define and explore friendship may be problematic for several reasons. First, the participant's concept of friendship may not be the quintessential nature of friendship that the researcher is trying to operationally define and understand. Secondly, researchers may choose from a wide variety of definitions to capture the idea of friendship. Finally, not allowing flexibility in the definition of friendship, which is inherent to its nature, leads to a lack of study concerning the full spectrum in the literature. On the other hand, asking participants to identify "friends" that meet certain criteria can also lead to issues such as comparing dyads that differ in fundamentally different ways and finding results that do not apply to all friendships. As stated before, what a participant believes to be friendship may not concur with the

researchers' ideas of friendship. Therefore, the findings from these studies may lack generalizability.

To resolve these issues concerning research on friendship, it is necessary to incorporate a self-report measure that quantitatively captures the multifaceted nature of friendship and allows respondents to make qualitative judgments concerning the friend they are describing. It is essential for researchers to have a scale that can reliably determine the quality of friendship between two people. Without such a scale, the researcher may find it difficult to compare, evaluate, or replicate studies that examine friendships. The present studies seek to examine one scale that is used prevalently in friendship literature, The Intimate Friendship Scale (IFS).

One reason it is important to be able to operationally define friendship is because the underlying factors of friendship may be the keys to understanding the high rates of alcohol consumption during the college years. Alcohol use is quite prevalent on college campuses. In fact, Wechsler, Lee, Kuo and Lee (2000) have reported that as many as 42% of college students binge drink. As a result, college students suffer nationwide from many of the negative effects of alcohol misuse including increased likelihood for sexual assault (NIAAA report, 2002), self injury (Perkins, 1992), and academic impairment (Wechsler, Dowdall, Maenner, Gledhill-Hoyt, and Lee, 1998; Engs, Diebold, and Hanson, 1996). The serious consequences that result from alcohol have sparked deep concerns among parents and academic institutions. As a result, identifying potential risk factors for alcohol abuse in college students has become a very important research topic. The current study examines the components of friendship and examines how these factors are associated with similar drinking patterns among college-aged friends.

Friendship

Although there are many different understandings of friendship, there seems to be some consistency within the literature about what constitutes a friend. At the most basic level, friendship is just interaction between two people and interaction is difficult when people are not close to one another. The increased likelihood of becoming friends over mere chance alone due to the physical closeness of two people is called the “Proximity” principle (Verbrugge, 1977). The “proximity” principle plays an especially important role during the development of friendships in college. Many students go away from home for college and the physical distance this creates may weaken old relationships, whereas new dormitory assignments and seating charts in new classes may help to form new friendships. Hays (1985) examined this phenomenon when he asked college students to give a list of potential friends at the beginning of the school year. Three months later, the potential friends that lived closer were more likely to become friends compared to those that did not. In another classic study on friendship by Festinger, Schacter, and Back (1950), proximity was also examined by looking at the relationship between apartment location and the likelihood of a friendship developing. Festinger et. al.(1950) found that married graduate students were twice as likely to become friends with one another if they lived next door compared to dyads that lived down the hall from one another. The only exception to this finding was if the students lived near the garbage can. Festinger and his colleagues hypothesized that this exception may emerge as a result of the same influences that were underlying their other findings: high exposure rates and a higher probability of continued contact lead to familiarity and a sense of comradeship. Additionally, high exposure rates and higher probabilities of continued contact are a direct influence of

physical proximity unless a function (such as taking out the garbage) emerges and results in a situation that repeatedly brings people together. These findings emphasize the notion that physical proximity does play an important role in determining the potential pool of friends and friendship emergence; however, there is some indication that other important factors such as common activities may be driving the selection process and determines which individuals become good friends rather than just mere acquaintances.

Verbrugge (1977) examined the role of functions in her work on spatial and social proximity on interpersonal relationships. She argued that social positions such as occupation, education, religion, nationality, and age actually restrict the opportunities that we have for meeting other people and hence, limit our chances for developing new relationships. For instance, one is more likely to go to the same places at the same time as someone who shares the same activities, social roles, and beliefs and vice versa. Based on this theory, she obtained responses regarding friendship from two cross-sectional samples of American adults from Detroit and German adults from Altnestadt. Findings from this study indicate that it is very difficult to tease apart the effects of status homogeneity and physical proximity on friendship formation due to their reciprocal nature. However, it does seem apparent that people are more likely to form friendship dyads that are similar in social status *and* closer in physical proximity than by mere chance alone.

Several of the social positions that Verbrugge uses to characterize the concept of social position, such as occupation and religion, are actually centered around social situation that involve engaging in joint activities. For example, individuals that share the same occupation may be collaborating on the same projects at work. Whereas,

Verbrugge theorized that the friendships that arise from such situations are based on close proximity and the opportunity to meet one another, Feld (1981) believes that social networks are formed around a “focus”. In other words, people form relationships when there are social, psychological, legal or physical situations around which joint activities are shared between two people that ultimately become friends. It is the action of working with another towards a common goal or end that leads others to feel connected to one another and build friendships. Feld produced evidence that individuals that share more “foci” had denser social networks showing that there is a relationship between “focus” centered activities and interpersonal relationships. Further, he showed that these underlying “foci” are what bridges people together and helps their relationships grow in terms of intimacy and the amount of time that two friends spend together.

Although past research has shown that individuals who are physically proximate and participate in the same common activities are more likely to develop a friendship, many people who share these characteristics do not go on to become friends. Friendship is a choice, and contrasting to other relationships that exist in an individual’s life like co-workers or relatives, friends are entirely optional. Therefore, other factors must exist that determine the likelihood of a friendship forming. Much of the literature suggests that similarity, not only in terms of space and activity, but also in regards to attitudes, beliefs, and demographics plays a large role in a person’s decision to become friends with another. One reason that a person selects to become engaged with another person is because he enjoys their company and likes them (Davis & Todd, 1982). People will often base whether or not they like someone on the basis of how similar they are to one another. In fact, Rosenbaum (1986) found that when a person disagrees with another,

their opinion of that person is lowered. Friends are likely to share many of the same traits including: age, sex, religion, physical attractiveness, political beliefs, academic study, and values (Laumann, 1969; Kandel, 1978). One of the goals of the present study is to gain understanding as to whether or not the importance of similarity between friends extends to drinking habits in college.

Friendship and College

The transition from high school to college is not only an important phase in an adolescent's life from an academic perspective, but also in terms of the new relationships that will be emerging. New friendships and relationships are one of the hallmarks of this transition. The typical college student's shift from high school to higher education usually includes leaving home for the first time and being away from the influence of parents as well as their childhood friends (Larose & Boivin, 1998; Cutrona, 1982; Kenny & Donaldson, 1991). This estrangement and the need to belong may lead the student to seek new friendships which fulfill several purposes that range from study buddies to emotional support to transportation to potential romantic partners (Rose, 1985; Hays & Oxley, 1986; Fleming & Baum, 1986). Although college students are constantly meeting and interacting with new people, they do not feel the need to develop intimate relationships with them all. In fact, Reiss (1990) reported that most college students rated "having a few close friends" as extremely important. However, "having lots of casual friends" was not rated as being very important. This begs the question as to why college students create intimate friendships with certain people and not others given the wide range of options for potential friendships presented in college atmospheres. Alcohol may provide an important link to answer this question.

College and Alcohol

As reported above, past research seems to indicate that college is a time where people form new relationships and grow distant with past associations. Concurrent with these changes in relationships, longitudinal studies show college students are drinking more in terms of quantity and frequency than while in high school. In addition, college students have higher levels of alcohol consumption compared to their non-college attending counterparts (O'Malley & Johnson, 2002; Johnston, O'Malley, Bachman, & Schulenberg, 2005; McCabe, Schulenberg, Johnston, O'Malley, Bachman, & Kloska, 2005). Many college students perceive alcohol to be an important part of their college experience. In fact, Wechsler and his colleagues (2002) go as far as to say that our society promotes this idea that part of campus life includes this "culture of alcohol" (Wechsler, Lee, Nelson & Kuo, 2002). The parallel findings regarding changes in relationships and drinking patterns lead one to question the role that relationships have on drinking patterns in college-aged adults. One explanation is that a fundamental motive of college students drinking alcohol is that it enhances their ability to be social and make new friends. As stated earlier, college students often report that making close friends is one of their goals. Establishments that serve alcoholic beverages (e.g., dance clubs or bars) as well as house parties (on or off campus) become places for meeting and maintaining friendships for this age group (Wechsler et. al , 2002). Many social functions in college (e.g., sporting events and social club meetings) incorporate the use of alcohol (Novak & Crawford, 2001; Baer, Stacy, & Larimer, 1991). There seems little evidence to refute that alcohol does play a significant role in the social aspects of college. In fact, Baer (2002) found after an extensive review of the literature on collegiate drinking patterns that it is the

expectancy of social benefits associated with drinking that may be more predictive of alcohol abuse than individual personality variables.

The research on why and where students drink is not as well documented as the research that examines the large prevalence rates of alcohol consumption and alcohol related problems in college-aged students. National studies have shown that the prevalence of alcohol use among college students super cedes any other drug, including tobacco and marijuana (O'Malley & Johnson, 2002). Due to the alarming patterns of alcohol abuse that are being seen on college campuses nationwide, the National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2002) recently developed a task-force that examines the levels of drinking among college students and tries to address "this culture of drinking". Although many students use alcohol responsibly or abstain altogether, there are some that choose not to do so. As a consequence, many students suffer as a result of alcohol. 1,400 college students die from alcohol-related unintentional injuries each year. In addition, alcohol is annually involved in approximately 500,000 unintentional injuries, 600,000 assaults, and 70,000 cases of sexual assault and acquaintance rape (NIAAA report, 2002). Given that the consequences of alcohol on college campuses are so great in number and extent of damage, alcohol misuse in this age group becomes a very important topic for researchers to tackle. The current study begins by identifying the various components that make up the concept of friendship in college-aged dyads. In addition, because existing research suggests that drinking patterns exist with respect to friendships, we examined whether the components of friendship that we uncovered vary as a function of drinking patterns.

Friendship and College and Alcohol

Kandel (1980) stated that “the most consistent and reproducible finding in drug research is the strong relationship between an individual’s drug behavior and the concurrent drug use of his friends, either perceived by the adolescent or as reported by the friends” (pg 269). This is a very strong statement about the nature of the relationship between drugs, such as alcohol, and friendship at the college age. Despite the power of such an assertion, it lacks insight as to the nature of this phenomenon. In the past, researchers have examined two main rationales for why there is such a difference in drinking patterns in the transition from high school to college: self-selection and peer effects.

If alcohol drinking patterns result from peer effects than there should be a significant change from alcohol use in high school to college. However, if alcohol drinking patterns are a result of self-selection (i.e., students seek friendships with others who share the same alcohol drinking patterns and expectancies), than the frequency and amount of alcohol used in high school and college should be highly correlated. Past studies have been inconclusive and provide data that support a dynamic association between self-selection and peer effects on alcohol abuse rather than one exclusive path.

It has been demonstrated in previous studies that the transition from high school to college is associated with alcohol use. Johnston (1974) used a longitudinal study to examine how different social groups (e.g., employed, military, college, etc.) affect drug use. He found that college students had the most substantial increase in drug use (including alcohol). In another study, Bachman, O’Malley, Johnston, Rodgers & Scholenberg (1992) used surveys to gain further understanding in this area. They found again that episodes of heavy alcohol drinking not only increased post high school years,

but that the highest rates of increase were found among college students. More recently, White, McMorris, Catalano, Fleming, Haggerty & Abbott (2006) found that students that left home to go to college used alcohol and engaged in heavy episodic drinking more frequently than when in high school. Furthermore, the same study showed that there were several factors that could protect students from experiencing this increase including religiosity, parental involvement, lower sensation seeking, and relevant to this study, having fewer friends that engaged in alcohol misuse. This data seems to suggest that increased alcohol use can be attributed to the new social and environmental cues (e.g., newly formed friendships) that are part of the college experience rather than individual differences.

However, other researchers have found that drug and alcohol use in high school are significantly correlated with subsequent college drug and alcohol use indicating that individual predictors should not be entirely ignored. Engel's unpublished Master's Thesis, Drug Use and the Transition from High School to College at Colorado State University, Fort Collins, CO in 1986 (as cited by Leibsohn, 1994) asked college students to retrospectively answer questions about their drug use in high school and their current use and found that student's alcohol and drug use stayed consistent throughout their high school and college years. Additionally, Leibsohn (1994) also used surveys that asked about the last month of high school and first month of college alcohol and drug use. When comparing the last high school senior month and first college freshman month, she found that there were no differences between the two for alcohol use and getting drunk. Furthermore, she found that 85% of alcohol users were getting drunk with friends. Regardless of the fact that new college students are leaving behind friends that they may

have drunk with in the past, it seems that they are continuing to drink and forming new friendships that consent to alcohol use, if not promote it. This research is more indicative of a self selection model where students are choosing friends (at least initially) based on similarities that include drinking patterns.

More recently, research is revealing evidence that suggests that both self-selection and peer effects contribute to the increase in alcohol consumption, particularly the binge drinking type of alcohol use that is a primary cause of many alcohol-related problems in college. Sher and Rutledge (2007) used self reports of participant's substance use before college entrance and after the fall semester of the participant's freshman year to examine potential predictors of alcohol use. Sher and Rutledge found that although much of the variance of alcohol drinking in college could be attributed to characteristics of the individual that existed before entrance, these same characteristics would often lead them to find social networks that would facilitate and even increase their consumption of alcohol. Based on these findings, recent models portray drinking predictors in a synergistic manner where both the effects of self-selection and peer effects interact with one another to contribute to alcohol use in college.

The present study will examine the relationship between friendship and alcohol drinking patterns, specifically the association between the different facets of friendship and how frequently friends drink together and the similarity in drinking frequency and amount.

Development of the Intimate Friendship Scale (IFS)

Sharabany (1974) developed the Intimate Friendship Scale (IFS) which sought out to measure the quantity and quality of dimensions that define friendship in adolescence

using Kibbutz adolescents in Israel. The IFS has thirty-two items assessing eight subscales: Frankness and Spontaneity, Sensitivity and Knowing, Attachment, Exclusiveness, Giving and Sharing, Imposition, Common Activities, and Trust and Loyalty. These questions were derived from three sources: the definition of friendship as defined by Webster's Dictionary of Synonyms, sociological studies on social distance (from Turner's studies), and psychoanalytical literature (i.e.; Freud, Erickson, and Sullivan). Respondents are required to rate on a 5-pt Likert scale ranging from "strongly agree" to "strongly disagree". The original thirty-two item version has been used in a number of studies examining friendships (Sharabany, 1994).

The IFS has also been shown to predict intimate friendship for same-sex friends in both boys and girls, while being independent of opposite sex friendship for twelfth grade females in a seven year longitudinal study of fifth grade boys and girls (Sharabany, 1994). This difference is consistent with developmental differences between boys and girls. Females in the twelfth grade no longer think of opposite-sex friends the same way they did in fifth grade, but for males this is not the case. The IFS has also been shown to be independent of IQ (Sharabany, 1994) and social desirability (Sharabany, 1974), however, it has been shown to be associated with identification with the group (Sharabany 1982), popularity, and role taking (Sharabany, 1994). Most importantly, in Sharabany's original study (1974), best friends were rated highly with more frequency and to a greater extent compared to ratings of other friends which shows that this is a measure that examines the quality of friendship.

The subscales of the IFS have also been used in past studies to examine associations with identification with the group (Sharabany, 1982). Attachment, Giving

and Helping, Taking and Imposing, and Common Activities were all associated with identification with the group, whereas, Frankness and spontaneity, Knowing and sensitivity, Exclusiveness, and Trust and loyalty were not. In the seven year study, same-sex friendships were studied using the subscales and it was found that for boys, only the Giving and sharing scale was associated with friendships from fifth to twelfth grade. Whereas, females' same sex friendships were steadier throughout these years, and several aspects of friendship were found to be correlated from the fifth to twelfth grade including: Frankness and spontaneity, Sensitivity and Knowing, Attachment, Imposition, and Trust and loyalty (Sharabany, 1994).

In terms of psychometric properties, the IFS scale has been shown to have good content validity and reliability. The content validity of the IFS seems to be high. The measure represents many, if not all, facets of friendship in terms of definition, sociology, and psychologically according to Webster's Dictionary, Runner, Freud, Erickson, and Sullivan. Content validity was also demonstrated in the first study by asking three psychologists to classify the thirty-two items after being given a list of the different eight sub-scales and the definitions associated with each. Twenty-eight of the thirty-two items were unanimously agreed upon. Sharabany (1994) describes this process in her paper on page 453:

“To evaluate the correspondence between theoretical intentions and operational definition as reflected by the intimacy scale, three judges, psychologists, were asked to classify the intimacy scale items after being provided with the definition for each dimension. Unanimous agreement was reached on 28 items (88 percent) of the 32 items. Thus, the intimacy scale manifests a reasonable content validity” (Sharabany, 1994).

Furthermore, in the initial study (Sharabany, 1974), reliability was demonstrated by reporting alpha coefficients for each of the four items in each subscale for four groups (city boy, kibbutz boys, city girls, and kibbutz girls). These values ranged from .72 to .77 for each subscale and show internal consistency. In addition, Sharabany (1974) calculated intercluster correlations which were lower than the alpha coefficients within each subscale. According to Sharabany, this shows that the full scale is not just measuring one aspect of friendship, but several distinct facets. While the scale and its dimensions do seem to initially exhibit validity, more sophisticated statistical methods may help us gain understanding about the structure of the IFS. Additionally, this scale was developed primarily with children from a very select population in a different country with a different culture. The findings from this study may or may not be replicated when using American college students. While the IFS may have some problems, other measures were considered for this study but for one reason or another were found to be lacking. A few of the predominantly used measures of friendship are discussed in the following section.

Alternative Measures of Friendship

Some friendship measures have tried to assess the presence of different friendship qualities. These measures include: the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987), the Wright's Acquaintance Description Form (Wright, 1982), the Friendship Quality Questionnaire - Revised (Parker & Ashe, 1993), the Friendship Quality Scale (Bukowski, Hoza, & Boivin, 1994), and the Friendship Quality Measure (Grottpeter & Crick, 1996).

The Inventory of Parent and Peer Attachment has been used to assess the quality of friendship in past studies. This scale was developed using attachment theory in regards to relationships not in the family. Armsden and Greenberg reported that attachment continues past childhood and onto adulthood. Friendships become relationships where individuals feel unease when apart and comfort together. This scale focuses on dimensions of friendship that embody this notion of affection based on need for attachment. It includes 25 items that ask questions about trust, communication, and alienation with their friends. The responses are summed and given a single score that describes the quality of the friendship in question. Most importantly, this measure lacks the multidimensional aspect of friendship portrayed in past research.

The Wright's Acquaintance Description Form has 80 items and eight separate subscales that include: Stimulation Value, Utility Value, Ego Support Value, Self-Affirmation Value, Voluntary Interdependence, Person-quo-Person, General Favorability, and Maintenance Difficulty. Wright's development of this scale rests on the argument that friendship is a valuable relationship to the extent that it fulfills self-referent motives. It is constructed using past theory on the motives satisfied by friendship and their relationship to self-referent motives. The Maintenance Difficulty subscale is somewhat problematic, because Wright argues that higher scores could indicate lower quality of friendship, however, lower scores could also mean that the two people involved do not put enough effort into maintaining their relationship. The ambivalence about what this scale measures makes it difficult to use. Furthermore, the three scales that are measured do not take into account common activities which is of particular relevance to the issue of alcohol use being examined in the current study.

The Friendship Quality Questionnaire (FQQ) and the Friendship Quality Scale (FQS) are two very similar measures that stem from the same sources. The FQQ was developed by Parker and Asher to compare the friendships developed in third through fifth grades, specifically those friendships of either lowly or highly accepted children. Parker and Asher used the theory in the literature to derive their items including an interview protocol developed by Berndt and Perry, Buhrmeister, Furman, and Sharabany, however, the initial pool of questions was primarily from Bukowski et al's 1987 study: *The Development of Companionship and Intimacy* published in *Child Development*. Parker and Asher developed the FQQ which is a 40 item questionnaire that measures friendship on six subscales which include: validation and caring, conflict and betrayal, resolving conflicts, companionship and recreation, intimate exchange, and help and guidance. Related to the FQQ is the FQS which also has been used to assess perceptions of friendship quality. The FQS was based on an interview procedure developed by Berndt and Perry and was then adapted using past theory on friendship and pilot studies. The FQS measure includes 25 items that measure five subscales including: conflict (4 items), companionship (6 items), help (5 items), security (5 items), and closeness in the relationship (5 items). Although both of these measures examine some important ideas about friendship, they do not take into account common activities which we are interested in since past research has shown that college friends will often drink together.

Another frequently used scale is the Friendship Quality Measure. The FQM developed by Grottpeter and Crick builds on the Friendship Quality Questionnaire and the Friendship Quality Scale and also added factors that examined aggression. Their sample included children that ranged from ages 9 to 12 and focused specifically on aggressive

children. The FQM looks at the relationship from the perspective of the participant as well as the friend in terms of how much intimacy, conflict, and exclusivity each created and/or desired. The Friendship Quality Measure has 43 items that measure 14 different subscales including: validation and caring, conflict 1 (friend is mad), conflict 2 (subject is mad), companionship and recreation, help and guidance, intimate exchange 1 (subject is intimate), intimate exchange 2 (friend is intimate), ease of conflict resolution, relational aggression within the friendship, over aggression within the friendship, relational aggression toward others, overt aggression toward others, exclusivity 1 (subject's desire for exclusivity), exclusivity 2 (friend's desire for exclusivity). Although aggression management in terms of friendship is an interesting topic, we were not interested in this concept so this scale was also not chosen.

All of the above mentioned scales lack the common activities measure. Also, all of the above scales examine negative and positive aspects of friendship such as conflict and the difficulty of maintaining relationships which are subjective and difficult to interpret. The Intimate Friendship Scale, on the other hand, does include a subscale that examines common activities as well as focuses on items that would objectively enhance the quality of the friendship. Based on these points, the present study examines the Intimate Friendship Scale (IFS) which is a scale that looks at friendship and has been used previously with some prevalence.

Considering the frequency with which the IFS is used and the importance of the concept of friendship in human relationships, it is essential to gain understanding about the IFS's structure. Specifically, study one seeks to provide additional empirical evidence on the IFS's structure in a large southeastern American college student sample by means

of exploratory factor analysis. In the second study, a confirmatory factor analysis will be performed that tests the fit of the scale to a proposed hierarchical factor structure where there are underlying friendship dimensions that generate different friendship quality scales. The third study will cross-validate the factor structure determined in study two with the friends of the sample used in Study Two. Finally, Study Four is designed to investigate the relationship between the factor(s) that emerge and alcohol drinking patterns.

Current study

As noted earlier, what have been provided in the analysis of the IFS by Sharabany (1974) are intercluster correlations and alpha coefficients of the eight scales she proposes. Although these findings are consistent with what psychologists would hope to find in a valid and reliable scale, more quantitative methods should be used to examine this scale. Specifically, exploratory and confirmatory factor analyses should be performed to substantiate that there are multiple and discrete dimensions of friendship that are being measured with this scale. Further, the sample used by Sharabany (1974) was drawn from a very limited and special population of young adolescents from Israel. This raises questions about the ability of researchers to generalize her findings to those of American college students.

While the IFS is most often used as an one-dimensional measure of quality of friendship of adolescents and young adults, this study will use confirmatory factor analysis techniques to corroborate Sharabany's proposed factor structure as well as examine alternative factor structures. To the best of my knowledge, no exploratory or confirmatory factory analyses have been performed on the IFS. Therefore, several

models will be compared to one another in order to determine which model is the best fit for the data. These models will include the independence model, a one-dimensional model, the model proposed originally by Sharabany, as well as a model that is driven by exploratory factor analysis results.

It is hypothesized that the best fitting model for the data will result from exploratory factor analysis. This model will most likely have components that are representative of friendship emergence that have been discussed in the literature such as common activities, physical proximity, and familiarity.

The identification of sub-groups of friendship characteristics will be a contribution to the field of research on friendship. Although in the future a wide range of research topics may be examined as a function of the identified subscale, the present study will use the friendship components to increase the understanding of the role of friendship in collegiate drinking patterns among dyads. Based on the hypothesized three factor model, it is believed that the common activities dimension will be more associated with shared drinking patterns than the other two scales.

STUDY 1: EXPLORATORY FACTOR ANALYSIS AND INITIAL RELIABILITY AND VALIDITY ESTIMATES

The purpose of this study was to explore the underlying factor structure of the Intimate Friendship Scale items. Although Sharabany (1974) provided conceptual basis for the development of the scale initially, this study was exploratory in that it did not establish specific hypotheses about the underlying factor structure of the scale items. Study 2 will build on the findings of Study 1 by testing the model found using the exploratory technique as well as other nested models.

METHOD

Participants

Data were obtained from two separate studies. The first sample was used to perform an exploratory factor analysis in Study One, whereas the second was used to perform confirmatory factor analyses. In order to determine that the two samples pulled were representative of the same population, chi square tests were performed on the gender and ethnicity for both groups. Gender was not significantly different for the two groups, [$\chi^2(1) = .812, p = .367$]. However, ethnicity was found to be significantly different, [$\chi^2(8) = 17.966, p = .021$]. This significance is due in large to the fact that 66.7% of the cells had an expected count of less than 5. The composition of age for the two groups was also compared, and the mean age of the two groups was significantly different, [$t(461) = 6.293, p = .001$]. The sample for Study One was significantly older ($M = 19.8$ yrs) than the sample for Study Two ($M = 18.7$ yrs). This data was collected from 2005 until 2007. Both studies were approved by the Institutional Review Board of the University of North Carolina-Wilmington. Participants from both samples signed written informed consents for the study.

College students were recruited for Study One participation through an online sign up as well as class recruitment (college math, personality psychology, and statistics classes) for a research project related to friendship. It is important to note here that alcohol use was neither mentioned nor required as part recruitment process, however, a significant portion of our sample did include regular alcohol drinker. In fact, 96% percent of the sample reported consuming alcohol in the last three months (M days drinking = 19.8, $SD = 20.6$). For their participation, students received either research credit or extra

credit for their participation. The participants were 166 students ranging in age from seventeen to twenty-nine years old (M age = 19.8, SD = 2.1). The majority of the participants in this study were female (72.6%) and Caucasian (85.5%). The remaining 14.5% of participants identified themselves as either African American, Asian American, Biracial, or Hispanic.

Materials

Participants were given a packet containing an informed consent form, a demographics sheet and a battery of measurement scales. The Quantity-Frequency Index (QFI; adapted from Cahalan, Cisin, & Crossley, 1969) measured drinking frequency within the past 3 months. The Intimate Friendship Scale (IFS; Sharabany, 1974) measured friendship characteristics. There was also a series of questions included that are used to assess drinking patterns among friends. The Drinking Motives Questionnaire (Adolescent Version) (DMQ; Cooper, 1994) measured the motives for alcohol use among students and was only given to Sample One participants. Each measurement scale has been presented with further detail in the following section.

Measures

The Quantity-Frequency Index

The Quantity-Frequency Index (QFI; adapted from Cahalan, Cisin & Crossley, 1969) measured the frequency, varieties, and quantity of alcohol use in the last 3 months. Participants reported the frequency and amount of alcohol use in the previous three months on various likert scales and fill in the blank questions. There are two measures of frequency in the QFI: an estimate of the number of days in the past 90 days that the participant drank alcohol and a composite score of how often the participant consumed

hard liquor, wine, and beer in the past 90 days that is based on a 7 point likert scale. Drinking frequency will be calculated by summing the amount of times hard liquor, wine, and beer were consumed in the last three months (i.e., almost everyday, 5-6 days/ week, 3-4 days/ week, 1-2 days/ week, 1-3 days/ month, less than once per month, or never). Each partner's self report of drinking frequency will be subtracted from the subject's self-report and then converted to an absolute scale to calculate a Frequency Discrepancy Score (FDS) for each dyad. Amount will be determined by summing the amount of hard liquor, beer, and wine, on average, that participants drank on a day that they drank alcohol. Each partner's self report of drinking amount will be subtracted from the subject's self-report and then converted to an absolute scale to calculate an Amount Discrepancy Score (ADS). An absolute score is used so that just differences are examined. Directionality is not of interest in this study. Although the ADS and FDS measures are related, there are fundamental differences in drinking patterns where alcohol is consumed daily in small amounts versus those that consume alcohol infrequently in large amounts. These two measures try to take these differences into account (see Appendix A).

The Intimate Friendship Scale

The Intimate Friendship Scale (IFS; Sharabany, 1974) measures the friendship qualities among dyad pairs. It is a scale that includes 32 statements which represent eight qualities of intimate friendship will be given. The factors are Frankness/Spontaneity, Trust/Loyalty, Imposition, Exclusiveness, Attachment, Giving/Sharing, Common Activities, and Sensitivity/Knowing. There are four items associated with each factor.

Participants indicate their level of agreement with each item using a scale from 1 (strongly disagree) to 5 (strongly agree) (see Appendix B).

Drinking patterns among friends

Drinking patterns among friends will be measured with two questions. The first, “During the past three months, how often have you been in contact with your friend?” will be used so that we can examine just plain contact with a friend as a concomitant of alcohol use during contact. The second question was “During the past month (i.e., the past 30 days), on how many occasions did you and your friend consume alcohol (e.g. beer, wine or hard liquor) together? Please provide your best estimate. Remember to think about recent parties, social gatherings, and any school based activities that involve drinking” specifically addresses this question of contact that involves alcohol use (see Appendix C).

The Drinking Motives Questionnaire

The Drinking Motives Questionnaire (Adolescent version) (Cooper, 1994) measures the motives of alcohol drinking among participants. This scale consists of 20 self-administered items that load on four factors: social, coping, enhancement, and conformity (peer pressure) motives (MacLean & Lecci, 2000). There are five items associated with each factor. Participants indicate how often that they drink alcohol for that reason using a scale from 1 (never) to 6 (almost always) (see Appendix D).

Procedure

Participants were given the packet of questionnaires to complete in a classroom setting. Participants were instructed to first read, sign, and return one copy of the informed consent. They were told that the second copy was theirs to keep. Next,

participants were instructed to fill out each questionnaire to the best of their ability and to return the packet when finished. Upon completion, participants were given a credit slip for their psychology class credit.

RESULTS

Descriptive Statistics

Table 1 contains the means and standard deviations of the IFS items and *a priori* subscales for the two samples (including Sample One used in the current study and A's from Sample Two used in confirmatory factor analyses of the IFS) separately. The *a priori* scales are computed by summing item scores on items 2, 8, 11, and 18 (frankness & spontaneity), 9, 10, 23, and 24 (sensitivity & knowing), 4, 21, 30, 32 (attachment), 1, 3, 14, and 27 (exclusiveness), 12, 20, 26, and 29 (giving & sharing), 15, 17, 26, and 31 (imposition), 7, 13, 19, and 22 (common activities), and 5, 6, 16, and 25 (trust & loyalty). Overall, low internal consistency reliability estimates were found for ($\alpha = .79, .71, .64, .63, .66, .63, .60, \text{ and } .73$) for frankness & spontaneity, sensitivity & knowing, attachment, exclusiveness, giving & sharing, imposition, common activities, and trust & loyalty subscales, respectively. Eight independent samples *t*-tests were conducted on the composite scores for the two samples using two-tailed *p* values and a Bonferroni-adjustment α -level of .0063. The homogeneity of variances assumption was checked with the Levene's Test for equality of variances and only the common activities subscale was not significant; therefore, a corrected version of the *t*-test is reported for this composite score only. Scores on the attachment subscale [$t(458) = -.918, p = 0.359$], exclusiveness subscale [$t(456) = .779, p = 0.436$], common activities subscale [$t(296.272) = 2.488, p = 0.013$], and trust & loyalty subscale [$t(459) = .051, p = 0.959$],

were not significantly different between the two samples. Scores on the frankness & spontaneity subscale [$t(451) = -4.582, p = 0.001, d = .41$], sensitivity & knowing subscale [$t(458) = -3.717, p = 0.001, d = .35$], giving & sharing subscale [$t(458) = -21.532, p = 0.001, d = .03$], and imposition subscale [$t(455) = -5.330, p = 0.001, d = .52$] were significantly different.

Overview of the Analyses

The analyses were conducted over several steps. First, a principal axis factor analysis with an oblique rotation technique was performed using Sample One. This statistical analysis will allow for an additional model that is both theoretical and data driven to be compared to other models. EFA findings are not typically stable so Study Two will use a CFA to validate the model fit of Study One and compare it to other models.

Exploratory Factor Analysis

An initial principal axis factor analysis was performed on the 32-item IFS scale using an oblique rotation for the data from Sample One. The extent to whether the data's covariance matrices should be factored was tested using the Bartlett's (1954) test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy (Kaiser, 1974). Both tests were shown to be significant signifying that it is appropriate to proceed with a factor analysis. Seven factors were retained based on the Kaiser-Guttman criterion that states that factors should be kept if their eigenvalues are greater than 1.0 (Kaiser, 1974). However, past research has shown that this procedure will often lead to a greater number of factors being retained than appropriate. A scree plot test (Catell, 1966) was performed and suggested a four-factor solution (Tabachnick & Fidell, 2001). A total of 15 items

were deleted because of low communalities (less than .20), low factor loadings (less than a conservative .40), and/or cross-loadings (less than .15 difference, absolute value). Also, item 9 was deleted, because it loaded on Factor 5 by itself. After deleting items, a five factor model was retained as the solution most closely corresponded to the best approximation of a simple structure with the fewest number of cross loadings (see Table 2). The results of the exploratory analysis extracted a factor that was comprised of item 14 (I do things with my friend that are quite different than what other and people might do) and item 12 (If my friend wants something, I let him/ her have it, even if I want it too). These two items do not seem to have any apparent connection and lack theoretical significance; therefore, this factor was not included in the subsequent CFAs. Past researchers have shown that it is not uncommon to end up with much fewer items in the final model than originally included in the scale, so the deletion of a large number of questions is not of great concern at this point in our analyses (DeVellis, 2003). Communalities for the 15 item scales ranged from .43 to .81 after rotation.

The four factors accounted for 32.55%, 8.10%, 5.48%, and 3.71% of the variance, respectively. Names were selected that depicted the distinct factors: Intimate Friendship (8 items), Instrumental Friendship (3 items), Possessive Friendship (2 items), and Utilitarian Friendship (2 items). Internal consistence reliability estimates were wide ranging ($\alpha = .91, .69, .61$, and $.60$) for the Intimate-, Instrumental-, Possessive-, and Utilitarian-Friendship subscales, respectively.

All subscales were significantly correlated (see Table 3). To examine the relationships among gender, age, ethnicity, and the IFS subscale scores, a multivariate analysis of covariance (MANCOVA) was performed with gender, age, and ethnicity as

independent variables and the IFS subscales as the dependent variables. This resulted in a non-significant omnibus test for gender, age, and ethnicity.

DISCUSSION OF STUDY ONE

In the present analysis, five factors yielded eigenvalues in excess of 1.44, whereas subsequent factors had eigenvalues below 1.19. The scree plot also indicated a factor solution of four to five factors. After examining the factor structure and removing items that were either cross-loaded or not significant, five factors were retained. However, Factor 4 was not theoretically meaningful, therefore was removed from subsequent analyses leaving only a four-factor model. The four-factor solution with promax rotation and oblique extraction for the retained items is presented in Table 2. EFA findings are typically not very stable; therefore, the four-factor model was subjected to a CFA and compared to other proposed models of the IFS in Study Two.

STUDY 2: FACTOR STRUCTURE RELIABILITY AND CONSTRUCT VALIDITY

Confirmatory factor analyses (CFAs) were used to investigate the factor stability of the exploratory solution found in Study One. As a means of investigating the construct validity of the measure, competing models of the IFS factor structure were tested. Additional reliability and validity data for this sample were also investigated. It is hypothesized that the data obtained in Study 2 would fit the factor model established in Study 1 and that the pattern of subscale intercorrelations for the IFS would be similar to that obtained in Study 1.

METHOD

Participants

College students were again recruited for participation through a combination of experimental sign up board located in the psychology department and online sign up for a

research project related to alcohol use and friendship. Participants received research credit or were entered into a lottery for a \$100 prize at the end of the semester for their participation. Unlike Sample One, Sample Two was required to bring to the experimental session a same gender friend, specifically not a romantic or potential romantic partner, who was also willing to participate. The participants were 596 students ranging in age from sixteen to forty-one years old (M age = 18.7, SD = 1.7). The majority of the participants in this study were female (75.4%) and Caucasian (88.6%). The remaining 11.4 % of participants identified themselves as either African American, Asian American, Biracial, or Hispanic. In addition, 79.2% percent of the sample reported consuming alcohol in the last three months (M days drinking = 16.2, SD = 18.2). The A's self-reports' of their friendship quality with the Bs was used in the following study. There were 298 A's ranging in age from seventeen to forty-one. The majority of these participants were female (75.4%) and Caucasian (88.6%). The remaining 11.4 % of participants identified themselves as either African American, Asian American, Biracial, or Hispanic.

Measures

The same exact questionnaire was given to this sample as in Study One, however, the Drinking Motives Questionnaire-Adolescent Version was not included in the battery.

Procedure

The sample for Study Two data was collected as part of an ongoing study in the Behavioral Examination of Alcohol, Caffeine, and Health lab at the University of North Carolina-Wilmington. In this study, each participant was required to bring a same gender friend, specifically not a romantic or potential romantic partner, who was also willing to

participate. Upon arrival, each dyad was separated to prevent talking during the study which may influence responses to the survey questions. Dyads shared the same participant number, however, one participant was denoted with an A on their forms and their friend was given the B forms. Each member of the dyad completed exactly the same set of questionnaires. Upon completion, participants returned the forms to the experimenter and either class credit was issued or the participant's name and telephone number were entered into a lottery for \$100.00 to be awarded at the end of the experiment. In order to avoid complications, the resulting analyses only utilize data from participants labeled as A. The data from participants labeled B will be held back in order to cross-validate finding from the current study.

RESULTS

Overview of the Analyses

The factor structure of the model based on the principal axis factor solution in Study One as well as the Independence model, a single factor model, and the model originally proposed by Sharabany (1974) were compared using confirmatory factor analyses (CFA). A more detailed description of these models and their parameters are shown below. All CFAs were performed using the AMOS computer package (version 4.1; Arbuckle, 1997). Asymptotically distribution free methods were used to resolve any skewness or kurtosis issues in the data and solve the equations specified by each model in the confirmatory analyses.

A set of hierarchically nested models that consecutively changed the number of equality constraints was used to examine the factor structure of the IFS. Each of the four models is described in detail below:

The independence model: This model specifies no correlation between any of IFS items. This model is not expected to perform well and is used merely as an anchor in order to compare the results from the other three models.

Model 1: In this model, a single friendship factor was specified with nonzero paths to all 32 IFS items. For identification purposes, the path from the friendship factor to item 1 was fixed at 1.00. The consequences of choosing such a value is that there is the risk of the model representing a local minima. To resolve such concerns, multiple tests would need to be performed that used different, random starting points and looked to see that there was a convergence in solutions; however, this is beyond the scope of the current project so the value of 1.00 was arbitrarily chosen for the first paths in all models.

Model 2: This is the model specified by Sharabany, consisting of correlated factors for frankness & spontaneity (items 2, 8, 11, and 18), sensitivity & knowing (items 9, 10, 23, and 24), attachment (items 4, 21, 30, and 32), exclusiveness (items 1, 3, 14, and 27), giving and sharing (items 12, 20, 26, and 29), imposition (items 15, 17, 26, and 31), common activities (items 7, 13, 19, and 22), and trust and loyalty (items 5, 6, 16, and 25). The path from the first item in each set was fixed at 1.00 to the corresponding latent factor for identification purposes.

Model 3: In this model, correlated Intimate Friendship (items 17, 2, 18, 4, 16, 6, 5, and 19), Instrumental Friendship (items 31, 36, and 24), Possessive Friendship (items 21 and 27), and Utilitarian Friendship (items 22 and 13) factors were specified. The paths from the Intimate Friendship factor to item 17, Instrumental

Friendship to item 31, Possessive Friendship to item 21, and Utilitarian Friendship to item 22 were fixed at 1.00 for identification purposes.

Past researchers and quantitative psychologists that utilize factor analyses recognize in the literature that the chi-square statistic is not always a good indicator of fit in large samples and is almost always significant even in Monte Carlo simulations where the “true” model is being tested (Bentler & Bonnett, 1980; Byrne, 2001). This tendency to fail to reject the null hypothesis in the difference between two models also occurs with frequency when there are many variables and the degrees of freedom are large (Grimm & Yarnold, 1995). Further, the most fundamental issue that needs to be tested in regards to the value of accepting a more complex model over a simpler version is with respect to whether or not there is a significant change in difference between those two models. Based on these points that find the overall chi-square statistic to be lacking, several alternative fit indices were used in addition to the chi-square statistic, including the DELTA2 (Bollen, 1989), the Tucker-Lewis index (TLI; Tucker & Lewis, 1973), and root-mean-square error of approximation (RMSEA) (Byrne, 2001). Values that are considered acceptable for the Delta2 and TLI are typically set at .90, and above .95 for good, whereas, RMSEA values that are at or below .05 are considered indicative of acceptable model fits (Hu & Bentler, 1999). A chi-square difference test was applied to determine whether the difference between the models was significant.

RESULTS

Table 4 provides summary results from the CFA. As expected, the independence model was rejected. The χ^2 values and the derived fit indices indicate the very poorest fitting model possible. The one factor solution was also very poor. The data was again

examined and estimates of the items, variances, and standardized residuals were used to identify problematic areas. At this point in the data analysis, it was recognized that the data was providing a negative covariance matrix. After further exploration, items 26 and 27 were found to have negative variances. The introduction of these items led to residual covariance matrixes (theta) in the model that were not positive definite most likely as a result of the asymptotic nature of item items 26 and 27. In order for a solution to be achieved, all subsequent analyses were performed with the additional constraints of setting these items' variance to zero as suggested by Gerbing and Anderson (1987). Item 24 was also problematic in that it was not significantly loading onto a factor. Therefore, item 24 was removed from all subsequent analyses. Fitting the data to Sharabany's model greatly increased the fit; however, the TLI and DELTA2 values were well below the desired common criterion with values of .818 and .838, respectively. The four-, three-, two-, and one- factor models based on exploratory results produced somewhat equivocal results, and none of them fit terribly. TLI and DELTA values met or very nearly met the common 0.90 criterion. Therefore, χ^2 tests of difference in fit between the models were calculated for the data. These tests indicated that a two-factor model fit significantly better than the one-factor model [$\chi^2 = 13.555$, $df = 15$, $p > .75$] and that the two-factor and three-factor models did not differ [$\chi^2 = 44.508$, $df = 17$, $p < .01$]. This suggests that the two-factor model provides the most parsimonious summarization of the IFS data.

DISCUSSION OF STUDY TWO

The initial CFAs for the Independence and One-Factor models yielded a poor fit with the data. Sharabany's model did demonstrate a substantial improvement in the

overall fit indices and RMSEA values, however, these values were still missing the established accepted levels of fit. The four-, three-, two-, and one- factor models produced somewhat similar results and none of them fit exceptionally well, however, all were improvements on Sharabany's model. To determine the best model, χ^2 tests of difference in fit between the models were calculated and showed the two factor model to be the best fit with the data. The emergent two factors were also theoretically meaningful and were labeled as Intimate Friendship (items 17, 2, 18, 4, 16, 6, 5, and 19) and Instrumental Friendship (items 31 and 26). The final modified version of the IFS that was developed used empirically driven methods and the resulting subscales (Intimate and Instrumental Friendship, 10 items) will be used to examine drinking patterns among college-aged friends in Study Three.

STUDY 3: A CROSS-VALIDATION OF THE MODIFIED IFS'S FACTOR STRUCTURE

The goal of Study 3 is to cross-validate the modified IFS's Factor Structure from Study 2 with the aim of achieving a stable factor structure. There is always the chance of finding patterns in one sample that do not replicate consistently to other samples so cross-validation is necessary in order to make sound conclusions about proposed models. Study 3 will use the same sample of participants that was used in Study 2, however, the B partner of the dyad's self report on the IFS items will be used rather than the A partner's. It is predicted that this sample will confirm the validity of the proposed two-factor model found in Study 2.

METHOD

Participants

The present study employed the B partner of the dyads from the Study 2 sample. The participants were 298 students ranging in age from sixteen to forty-five years old (M

age = 18.8, SD = 1.6). The majority of the participants in this study were female (74.8 %) and Caucasian (87.5%). The remaining 12.5 % of participants identified themselves as either African American, Asian American, Biracial, or Hispanic. In addition, 82.5 % percent of the sample reported consuming alcohol in the last three months (M days drinking = 17.8, SD = 18.0). The As and Bs were representative of the same population in that chi-square difference tests showed no significant difference in age, gender, ethnicity, education, or relationship status between the two groups.

Procedure

The exact same procedure was followed as detailed in Study 2. The data used in Study 3 comes from Study 2.

RESULTS

Overview of the Analyses

In order to cross-validate the findings of Study 2 with a new sample, CFAs were performed according to the same criteria detailed in Study 2's analyses. The exact same analyses were performed using the exact same models, however, the data came from the B partner of each dyad rather than the A partner, which was used in Study 2.

Results

Table 5 provides summary results from the CFA. As expected, the independence model was rejected. The χ^2 values and the derived fit indices indicate the "worst possible" fit scenario. The one factor solution was also very poor. However, interestingly, Sharabany's model produced indices that signified an ever poorer fit to the data than the one-factor model that included all 32 IFS items. This difference was significant according to chi-square of difference tests in model fits [$\chi^2 = 554.957$, $df = 20$,

$p < .01$]. Again, estimates of the items, variances, and standardized residuals were used to identify problematic items. The exploratory four-, three-, two-, and one-factor models were compared using the fit indices calculated during CFAs. Although all exploratory models significantly improved upon the one-factor model with all 32 items, all but the two-factor exploratory model failed to meet the criteria for fit indices. Through the use of chi-square of differences tests in model fits, it was found that there were no significant differences between the four-, three-, two-, or one- factor models. Therefore, the two-factor model was found to be the best fit in terms of chi-square difference in model tests and fit indices. The alpha scores for the Intimate and Instrumental subscales were .87 and .68, respectively. This is consistent with psychometric theory that states that factors that have fewer items will be less likely to consistently replicate.

DISCUSSION OF STUDY THREE

Based on these findings, the two-factor model was found to still be the best fit for the data. However, it is important to recognize that none of the models tested are optimal solutions based on the criterion established by statisticians. When examining the validity of a scale that has been developed and is currently in use, it is easy to forget that many of the initial findings in an exploratory factor analysis and even confirmatory factor analysis can be attributed merely to chance. Cross-validation is necessary to corroborate the initial findings and verify that the best fitting model in one sample is consistently replicated in other, independent samples in the population. The current model proposed for the IFS has high values of RMSEA, and the fit indices values asymptote as more and more items are removed. However, the IFS is currently being used in research as an one-factor and eight-factor scale so it is important that the scale be psychometrically

evaluated. Given the data, the two-factor model appears to fit much better than either the one-factor (all 32 items) or the eight-factor solution.

These findings also introduce another research question which centers on the association between the dimensions of friendship in the modified IFS (Intimate and Instrumental) and drinking patterns in college students.

STUDY 4: THE DIMENSIONS OF THE IFS AND DRINKING PATTERNS IN COLLEGE STUDENTS

The previous three studies were necessary to obtain an empirically derived model of friendship that encompasses the different components that characterize these relationships. Using factor analyses, two subscales of the IFS were identified: Intimate and Instrumental Friendship. Study 4 seeks to examine the relationship between these two dimensions of friendship measured by the modified IFS and drinking patterns in college students.

METHOD

Participants

Study 4 uses the same sample of participants as in Study 2 and Study 3.

Procedure

The data collected for Studies 2 and 3 is the same data that will be used for Study 4. The questionnaires were also the same as in Studies 2 and 3.

RESULTS

Overview of Analyses

Analyses were limited only to participants that had reported drinking in the past 90 days. Seventy-three participants were removed from further analyses due to this stipulation. The first set of analyses examines the drinking patterns of dyads only when they drink together. The second set of analyses examines the individual drinking patterns

in friendships and this may include instances of one partner drinking with their friend, others, or alone.

Subscales of the Modified IFS and Shared Drinking Occasions among Dyads

In order to examine the association of the subscales of the modified IFS (Intimate and Instrumental Friendship) with drinking patterns among college-aged friends several different analyses were performed. First, to determine if the scales were associated with whether or not friends drank alcohol together, a regression was performed on data from participants labeled as B from the sample collected for Study Two. The number of drinking occasions with the friend (participant A) in the past 30 days was regressed on scores on the Intimacy and Instrumental subscales. The Intimacy subscale significantly predicted the number of times that friends drank alcohol together in the past thirty days, $\beta = -.270$, $t(236) = -2.677$, $p < .01$. However, the Instrumental subscale did not significantly predict the number of times that friends drink alcohol together in the past thirty days. The model did explain a significant proportion of variance in the number of times that friends reported drinking alcohol together in the past thirty days, $R^2 = .036$, $F(2, 236) = 4.47$, $p < .05$. The results seem to indicate that college-aged students do drink alcohol with their friend if they feel high levels of intimacy with that friend compared to those friends with whom they did not feel as intimate. Although it was found that the Intimacy factor was associated with whether or not friends drank together, the same was not true for the Instrumental factor. No significant association was found between whether or not friends drank together and their scores on the Instrumental Factor.

Although these findings were noteworthy in terms of drawing conclusions about which dimension is driving the decision for college-aged friends to drink together, it does

not examine other factors that may be influencing the association between high scores on intimacy and the decision to drink with friends in college. In addition, these findings do not explain why there was no association between instrumental friendship and the decision to drink with friends in college. The following analyses look at the association between the subscale scores and other friendship and drinking pattern items including the length of friendship, how often the friends are in contact with each other, and number of occasions spent drinking with friend in the past thirty days. Furthermore, these analyses were restricted only to those participants that reported drinking with their friend at least once in the past month (180 dyads). First, the Intimate Friendship subscale scores were regressed on the number of months the dyad had been friends, how often the two friends had contact in the past three months, and the number of occasions spent drinking together in the past 30 days. These three predictors accounted for only 5% of the variance in Intimate scores ($R^2 = .05$), but the model was significant, $F(3, 178) = 3.302, p = .022$. The amount of contact in the past month ($\beta = .88, p = .013$) and the number of months they had known each other ($\beta = -.014, p = .040$) demonstrated a significant association with the Intimate subscale. However, the number of times that the dyad drank together in the last thirty days was not associated with scores on the Intimate subscale.

Next, the Instrumental subscale scores were also regressed on the number of months the dyad had been friends, how often the two friends had contact in the past three months, and the number of occasions spent drinking together in the past 30 days. These three predictors accounted for less than 1% of the variance in Intimate scores ($R^2 = .001$) and the model was not significant. Also, neither the number of months they had been friends, the amount of contact in the past three months, nor the number of occasions spent

drinking together in the past 30 days were associated with the Instrumental subscale scores.

Subscales of the Modified IFS and Individual Drinking Pattern Similarities among Dyads

To test the relationship between the subscales of the modified IFS and the similarities of friends in terms of individual drinking patterns (not necessarily when drinking with one another), a hierarchical regression was performed. In the first model, demographic (control) variables were entered; in the second stage, we assessed the relationship between the subscales and either the discrepancy among friendship dyads in terms of the number of days (DDS), how often (FDS), or how much (ADS) the two drank alcohol in the past 90 days. The results are shown in Table 6.

DISCUSSION OF STUDY 4

The scales that were used in Study 4 were the result of data driven methods. Part of these methods included accounting for missing values in the data set. Out of the 298 participants labeled A in Sample Two, five participants did not answer one item (one participant did not answer the last 8 items on the IFS). Out of the 298 participants labeled B in Sample Two, seven participants left one item blank (one participant left 3 items unfilled). Not wanting to lose any participants on the basis of one missing question, full information maximum likelihood methods were used to handle missing data. As a result, the scales were developed in such a manner that each item had a value even if it was originally missing. However, when scoring the scales for Study 4 and running subsequent analyses that examined the associations of these scales with alcohol drinking, these values were not available. Therefore, there may have been some issues

arising with the missing items. The number of missing items is fairly small; however, this note should be taken into account when considering the connotation of these results.

Based on the results from the first regression where the scores of the subscales were treated as predictors of the number of days friends reported drinking together in the past thirty days, the current study shows that whether or not friends drink with one another is associated with the levels of self-reported intimacy, but not instrumental activities such as being able to depend on help from one another. Further, there was a positive association between contact and intimacy. Due to the way that contact was coded (1= daily and 7= less than monthly), this positive association indicates that as friends had less contact with one another in the past the month, the higher they scored on the Intimacy subscale. It is important to note that 91.9% of the participants reported that they saw their friend about every other day. The relative high frequency of contact may have skewed results a bit, however, this pattern of friendship may be indicative of classmates in college where individuals see each other often, but are not friends outside of the classroom. This finding may be a relic of the convenience of finding a classmate that also needs class credit to participate rather than speaking to the true nature and quality of friendship. On the other hand, there was a negative association between the length of friendship and the scores on the Intimacy subscale. This may be also characteristic of typical friendships in college where students meet new people and become quite close to them fairly quickly. Also, the fact that there was no significant association between the number of occasions that friends drank together and levels of intimacy is also an interesting finding and counterintuitive to what one would expect to find based on past studies. Many activities where one is able to share feelings, disclose

personal information, and feel close to another person (all aspects of the Intimate subscale) do not involve drinking alcohol. Perhaps friends that are taking part in these activities where conversation and sharing is the focus are becoming more intimate with one another compared to those friends that go out clubbing or partying together. However, the finding that friends that were highly intimate had much higher odds of drinking together at least once compared to those friends that scored lower in intimacy suggests that perhaps those occasions when they do drink together is more of an artifact of a social bonding motive rather than for the sole purpose of drinking alcohol.

On the other hand, results showed that there was no association between the amount of contact, length of friendship, or number of occasions with the Instrumental subscale. The Instrumental subscale is comprised of two questions that characterize the extent to which one friend will help another in terms of doing favors and borrowing items. This level of friendship seems to typify that of a college roommate or classmate where the two people depend on one another for financial and/ or scholastic survival, but are not intimate with one in another in terms of sharing their feelings or hopes.

Based on these findings, there is no reason to believe that friendship type (defined by the Intimate or Instrumental subscales) has any association with shared drinking patterns. Further, it was also hypothesized that college-aged friends would be drinking more similarly to one another when they were not together than those who were not scoring as highly on these dimensions of friendship. The current study also shows that there is no association between friendship type and the discrepancy scores of dyads in terms of frequency, amount, or days of alcohol consumed in the past 90 days. One premise for the lack of association found between the subscales and the individual

drinking patterns between friends in the current study might be that these college friendships are created and centered on activities/ traits that do not involve alcohol drinking such as classes, hobbies, or living situations. Another hypothesis for these findings is that ratings on friendship items are actually a result of an individual's perceptions of friendship rather than the friendship itself. However, the overlap in the ratings between A's and B's in each dyad (shown in Table 7) would seem to suggest otherwise.

GENERAL DISCUSSION

Alcohol related problems (including fatalities and missing classes) are increasing and quite prevalent among college-aged students (Hingson, Heeren, Zakocs, Kopstein & Wechsler, 2000). Past research has shown that friendships and social networks play a major part in the prevalence of alcohol abuse and misuse in college (Novak & Crawford, 2001; Baer, Stacy, & Larimer, 1991). The current study proposed to examine the relationship between friendships in college and alcohol use. To evaluate this association, it was necessary to develop a model of friendship that considered the different functions that friendship plays. The first three studies examined a scale currently in use called the Intimate Friendship Scale (Sharabany, 1974). In Study One, using the items from the IFS, an exploratory analysis was performed that retained four factors: Intimate (e.g., I feel close to my friend), Instrumental (e.g., I can be sure my friend will help me whenever I ask for it), Possessive (e.g., When my friend is not around, I keep wondering where he/she is and what he/she is doing), and Utilitarian friendship (e.g., I work with my friend on some hobbies). In Study Two, this model of friendship was subjected to a Confirmatory Factor Analysis. Findings from Study Two showed that the exploratory

models found in Study One showed substantial improvement upon the Independence Model and the eight-factor model proposed by Sharabany. Based on chi-square tests of difference in fit between the models and fit indices, a two-factor solution was retained and included the Intimate and Instrumental dimensions of friendship. Due to the fact that often statistical analyses make the most of chance when initially developing a model, the two-factor solution proposed in Study Two was validated in Study Three with the friends of the participants used in Study Two. The findings from Study Three showed lower fit indices and higher RMSEA values across all models including those for the two-factor model. These results indicate that the initial CFA findings may have been largely influenced by statistical error. However, based on chi-square tests of difference in fit between models and the fit indices, the two-factor model was still the best fitting model to the data, although it is not an optimum representation of the characteristics of friendship based on the criteria set forth by Hu and Bentler (1998, 1998). Hu and Bentler proposed that adequate fits to the data would be characterized by model indicators, such as the TLI, being equal to or greater than .95 and the RMSEA value being close to 0.06. However, Hu and Bentler performed their work on data with continuous and normal outcomes. More recently Yu (2002) demonstrated that categorical outcomes (like the ones in the current study) should be examined differently due to the fact that maximum likelihood based fit indices tended to reject a high percentage of the true models in Monte Carlo simulations as a result of inflated type 1 errors and low power even in samples greater than 250 with normal and moderately non-normal outcomes. Yu recommended that more weight be placed on the TLI values rather than RMSEA values and suggested that the cutoff for RMSEA be increased. Given this new knowledge and the fact that the

Intimate Friendship Scale is currently in use with little psychometric backing, the two-factor model based on modifications of the IFS may be the best solution for researchers wishing to use this scale.

While one aim of this research was to examine the IFS in terms of its factor structure, the primary goal was to determine the dimensions of friendship and their relationship to drinking patterns among college-aged friends. In the past, psychologists have examined the emergence of friendship in terms of proximity and common activities and found that individuals who are closer in terms of physical and social proximity will most likely become friends (Feld, 1981; Verbrugge, 1977; Festinger et. al, 1950). In college, physical proximity may be a function of living in the same dorm or attending the same classes, but it is highly likely that common activities will include alcohol use (Wechsler et al., 2000). Therefore, based on prior theories of friendship, we expected factors dealing with common activities and similarity to surface in the model and for many of these factors to be associated with alcohol use between friends. However, the two factors that materialized were actually a general “Intimacy” subscale and “Instrumental” subscale. The Intimacy subscale items described in general a dyad that shared positive esteem and respect for each other. The Instrumental subscale, on the other hand, specifically discussed the ability of one friend to be able to rely on the other for help or favors. Although one would expect that positive esteem and helping behaviors would go hand in hand, the current findings show that these are two detached dimensions that need to be examined separately.

Study 4 examines the differences in these two factors in terms of drinking alcohol and other friendship questions. Findings from this study show that friends that score

higher in terms of intimacy scores are much more likely to have shared a drinking occasion in the past month with their friend compared to those dyads who did not score as highly on the intimacy subscale. Further, there was an association between the amount of contact and length of friendship and scores on the Intimate subscale. Friends that score higher on the Intimate subscale spent less time together and had known their friend for fewer months than their dyad counterparts who scored lower on the Intimate subscale. This type of friendship seems to exemplify what one might expect of college freshman friendships in that they are meeting for the first time in college and they are spending lots of time together on classes and school-related activities. There were no significant findings between scores on the Instrumental subscale and whether or not friends had a shared drinking occasion in the past, the length of friendship, the amount of contact, or the number of shared drinking occasions. High scores on the Instrumental subscale would demonstrate a friendship that is based mainly on the function of having someone to help you in a time of need. The fact that this dimension is not significantly related to any other friendship characteristic such as the length of time that one has known the other or the amount of contact that the two friends have suggests that this is a very flexible relationship based on obligation and need, not necessarily intimacy. Further, when examining drinking patterns independently for the individuals that comprised a friendship dyad, there were no significant associations between the scores on the Intimate or Instrumental subscales signifying that other features about these individuals were more highly weighted during the times when the pairs were gaining and maintaining these friendships. These findings are consistent with past research on friendship that shows that these relationships emerged as a result of on non-alcohol related similarities

including opinions, beliefs, academic studies, and age (Laumann, 1969; Kandel, 1978; Rosenbaum, 1986).

The present study has several strengths that build upon past college-based research examining the relationship between alcohol use and friendship. First, this study asked participants to bring in someone whom they considered to be a friend. Due to this methodology, data was collected both for an individual's self reported drinking habits and feelings on the friendship as well as that of the friend who was brought along to participate. This experimental design allows researchers to verify the information given by each participant and increases the validity of the findings. Secondly, the present study allows participants to choose the friend with whom they want to participate so in this way they were not restricted in anyway on arbitrary criterion that the experimenters felt represented the concept of "friendship". Rather, the level of friendship was empirically evaluated using a modified version of a commonly used scale that underwent several psychometric tests in order to determine the dimensions that would be best used to describe "friendship".

The current study also has some limitations that should be considered while evaluating the legitimacy of making implications based on these findings. First, because the current study made use of a developed scale presently in use, the survey items in the original Intimate Friendship Scale limited what could be examined. For example, only 32 items were originally created and often these items may not have specifically addressed an underlying concept that needed to be examined. For example, initially in the exploratory factor analysis items were loading on a "Utilitarian" subscale that addressed specific activities spent together such as the item, "I work with my friend on

some school or work projects.” If the item had been stated in a variety of contextual ways so that there were clear anchors to situations where one would perform hobbies with an acquaintance at work (e.g. I work with my friend on projects at school or work, but we never see each other outside of the classroom or office) rather than a “true” friend (e.g. I work with my friend on projects at school or work, but we also do lots of other fun activities outside of the classroom or office). Next, the small sizes of some of the groups limited the inclusion of other potentially relevant factors such as ethnicity, personality characteristics, and living arrangements. Also, the strength of allowing participants to choose any friend to bring may have weakened our ability to detect any effects. Perhaps in the future it would be best to ask participants to bring a “best” friend. This would still allow for the subjectivity involved in determining the merits of a friendship, but would eliminate participants bringing random classmates for whom they feel no camaraderie. At the present, there is no way to speak to the nature of the relationships in this study. It is hypothesized that a fair amount of students were classmates and that some of the findings may have been artifacts of the design which made this experiment more convenient to dyads consisting of Intro Psychology classmates. Finally, this study is based on self-reports and is non-experimental in nature, therefore the interpretations of the findings are subject to alternative explanation.

In order to examine the concept of friendship and its relationship to alcohol consumption among friends in college, a better scale needs to be developed that examines some of the dimensions that were pulled out initially in the exploratory factor analysis. More items and a larger, more diverse sample of college students would enable researchers to develop a scale whose fit would consistently replicate to independent

samples of college students across the United States. Also, the present study was cross-sectional. Future studies should include longitudinal research that examines if friends tend to increase their similarity in drinking patterns relative to one another as they become closer in terms of friendship dimensions, increase the time they know one another, and increase contact.

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TABLES

Table 1. IFS item, means, and standard deviations by sample.

	Sample One (n = 166)		Sample Two (A's) (n = 298)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1. I stick with my friend when my friend wants to that other people don't want to do.	2.20	.87	2.15	.83
2. I feel free to talk to my friend about almost anything.	1.40	.74	1.65	.84
3. The most exciting things happen when I am with my friend and nobody else is around.	2.91	.96	2.91	.86
4. I feel close to my friend.	1.45	.65	1.78	.77
5. I know that whatever I tell my friend will be kept secret between us.	1.78	.98	1.80	.76
6. I tell people nice things about my friend.	1.52	.73	1.48	.72
7. Whenever you see me, you can be pretty sure that my friend is around, too.	2.82	1.03	2.66	1.00
8. If my friend does something I don't like, I can always talk to him/ her about it.	1.80	.84	2.02	.81
9. If know how my friend feels about his/her girlfriend/boyfriend.	1.72	.89	1.81	.93
10. I can tell when my friend is worried about something.	1.54	.66	1.75	.77
11. I can tell my friend when I have done things that other people do not approve of.	1.65	.83	1.95	.91
12. If my friend wants something, I let him/her have it, even if I want it too.	2.52	.97	2.50	.83
13. I work with my friend on some school or work projects.	2.83	1.31	2.31	1.06
14. I do things with my friend that are quite different than what other people might do.	3.13	1.12	3.02	1.05
15. I can plan how we'll spend our time without first having to check with my friend.	2.65	1.06	2.81	1.02
16. I speak up to defend my friend when other people say bad things about him/her.	1.53	.70	1.65	.74
17. I can use my friend's things without asking permission.	1.37	.67	2.53	1.06
18. I talk to my friend about my hopes and plans for the future.	1.46	.76	1.71	.74
19. I like to do things with my friend.	1.29	.51	1.40	.63

20. When something nice happens to me, I share the experience with my friend.	1.39	.62	1.50	.72
21. When my friend is not around, I keep wondering where he/she is and what he/she is doing.	3.20	1.02	2.97	1.08
22. I work with my friend on some hobbies.	2.36	.99	2.30	.87
23. I know how my friend feels about things without having to be told.	2.07	.82	2.34	.86
24. I know what kind of books, hobbies and other activities my friend likes.	1.72	.65	2.01	.80
25. I will not go along with others to do anything against my friend.	1.92	1.01	1.77	.93
26. I offer my friend the use of my things (like clothes, possessions, food, etc)	1.61	.77	1.56	.72
27. It bothers me to have other people come around and join in when the two of us are doing something together.	3.96	.89	3.96	.84
28. If I want my friend to do something for me, all I have to do is ask.	1.95	.90	1.89	.77
29. Whenever my friend wants to tell me about a problem, I stop what I am doing and listen for as long as my friend wants.	1.73	.81	1.74	.77
30. I like my friend.	1.25	.53	1.27	.59
31. I can be sure that my friend will help me whenever I ask for it.	1.55	.77	1.58	.68
32. When my friend is not around, I miss him/her.	2.42	.95	2.49	.98
Frankness & spontaneity (items 2, 8, 11, and 18)	6.32	2.49	7.33	2.48
Sensitivity & knowing subscale (items 9, 10, 23, and 24)	7.06	2.23	7.91	2.50
Attachment subscale (items 4, 21, 30, and 32)	8.31	2.26	8.52	2.49
Exclusiveness subscale (items 1, 3, 14, and 27)	12.24	2.63	12.04	2.29
Giving & sharing subscale (items 12, 20, 26, and 29)	7.23	2.66	7.31	2.31
Imposition subscale (items 15, 17, 28, and 31)	7.54	2.36	8.82	2.49
Common activities subscale (items 7, 13, 19, and 22)	9.29	2.70	8.66	2.34
Trust & loyalty subscale (items 5, 6, 16, and 25)	6.75	2.57	6.70	2.45

Table 2. Factor Loadings and Communalities

Item	EFA Factor loadings							η^2
	1	2	3	4	5	6	7	
Intimate								
17. I can use my friend's things without asking permission.	.84	.53	.22	.46	.44	-.07	.41	.81
2. I feel free to talk to my friend about almost anything.	.82	.55	.25	.33	.46	.00	-.02	.71
18. I talk to my friend about my hopes and plans for the future.	.81	.54	.22	.42	.45	-.11	.40	.76
4. I feel close to my friend.	.76	.58	.36	.31	.46	.19	.13	.62
16. I speak up to defend my friend when other people say bad things about him/her.	.74	.44	.15	.36	.40	.16	.25	.58
6. I tell people nice things about my friend.	.73	.40	.19	.26	.31	.27	.30	.62
5. I know that whatever I tell my friend will be kept secret between us.	.70	.41	.26	.22	.35	.11	-.00	.52
19. I like to do things with my friend	.69	.54	.11	.28	.42	.02	.63	.78
Instrumental								
31. I can be sure that my friend will help me whenever I ask for it.	.54	.70	.14	.26	.46	.20	-.03	.55
26. I offer my friend the use of my things (like clothes, possessions, food, etc)	.40	.67	.08	.41	.41	.13	.15	.52
24. I know what kind of books, hobbies and other activities my friend likes.	.25	.63	.34	.18	.45	.14	.06	.50
Possessive								
21. When my friend is not around, I keep wondering where he/she is and what she/ he is doing.	.19	.32	.73	.20	.28	.34	.01	.57
27. It bothers me to have other people come around and join in when the two of us are doing something together.	.09	.09	.62	.20	.12	.06	-.16	.43
Utilitarian								
22. I work with my friend on some hobbies.	.26	.30	.34	.14	.28	.69	-.04	.53
13. I work with my friend on some school or work projects.	.11	.21	.08	.32	.25	.64	-.04	.51

Note: N = 166. Numbers in bold show the highest factor loadings for each item. Factor 1 = Intimate Friendship; Factor 2 = Instrumental; Factor 3 = Possessive Friendship, Factor 4 = Utilitarian Friendship. EFA = Exploratory Factor Analysis.

Table 3. Correlation Matrix for IFS Exploratory Factor Analysis Results Subscales

Factor	Intimate	Instrumental	Possessive	Utilitarian
Intimate	-			
Instrumental	.512**	-		
Possessive	.162**	.194*	-	
Utilitarian	.187*	.320**	.235**	-

Note: n = 166.

* $p \leq .05$. ** $p \leq .01$.

Table 4. Summary statistics for competing models (n = 298)

	χ^2	df	$\Delta \chi^2$	Δdf	TLI	DELTA2	RMSEA
Independence Model	10584.481	496	NA	NA	.000	.000	.262
One- Factor Model	8726.497	464	1857.984	5	.125	.184	.245
Sharabany Model	2091.786	444	6634.711	20	.818	.838	.112
Exploratory Based Models							
4 Factor Model	246.211	72	1845.575	372	.936	.950	.090
3 Factor Model	197.406	52	48.805	20	.945	.957	.097
2 Factor Model	152.898	35	44.508	17	.934	.949	.106
1 Factor Model	139.343	20	13.555	15	.824	.875	.142

Note: TLI: Tucker- Lewis Index; RMSEA = Root-Mean-Square Error of Approximation

Table 5. Summary statistics for competing models (n = 298)

	χ^2	df	$\Delta \chi^2$	Δdf	TLI	DELTA2	RMSEA
Independence Model	5287.772	528	NA	NA	.000	.000	.126
One- Factor Model	2279.911	464	3007.861	64	.566	.624	.083
Sharabany Model	2834.868	444	554.957	20	.403	.506	.097
Exploratory Based Models							
4 Factor Model	495.325	73	2339.543	371	.839	.765	.101
3 Factor Model	444.717	53	50.608	20	.842	.765	.114
2 Factor Model	351.211	35	93.506	18	.934	.949	.106
1 Factor Model	100.152	20	251.059	15	.931	.874	.084

Note: TLI: Tucker- Lewis Index; RMSEA = Root-Mean-Square Error of Approximation

Table 6. Hierarchical Regression Model Results for Drinking Discrepancy Scores

Models/ Predictors	<u>Dependent Variables</u>					
	DDS		FDS		ADS	
	β	SE	β	SE	β	SE
<u>Model 1: Demographics</u>						
Age	-.02	1.73	.13	.23	.163*	.24
Gender	.08	4.03	.12	.52	.081	.54
Ethnicity	.01	4.88	-.08	.65	.052	.81
Model F Value	.436		1.805		1.983	
R ²	.001		.031		.034	
<u>Model 2: Subscales</u>						
Intimate	-.08	.63	-.07	.08	-.064	-.08
Instrumental	.044	2.27	-1.87	-.22	-.154	.30
Model F Value	.345		3.873**		2.662*	
R ²	.011		.104		.074	

p< .05, ** p <.001. *Note:* All coefficients are standardized.

Table 7. Means and Standard Deviations for IFS Items in Sample Two

	A's (n = 298)		B's (n = 298)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1. I stick with my friend when my friend wants to that other people don't want to do.	2.15	.83	2.20	.85
2. I feel free to talk to my friend about almost anything.	1.65	.84	1.64	.82
3. The most exciting things happen when I am with my friend and nobody else is around.	2.91	.86	2.87	.88
4. I feel close to my friend.	1.78	.77	1.70	.75
5. I know that whatever I tell my friend will be kept secret between us.	1.80	.76	1.84	.86
6. I tell people nice things about my friend.	1.48	.72	1.50	.67
7. Whenever you see me, you can be pretty sure that my friend is around, too.	2.66	1.00	2.67	1.02
8. If my friend does something I don't like, I can always talk to him/ her about it.	2.02	.81	2.08	.89
9. If know how my friend feels about his/her girlfriend/boyfriend.	1.81	.93	2.55	8.02
10. I can tell when my friend is worried about something.	1.75	.77	1.78	.75
11. I can tell my friend when I have done things that other people do not approve of.	1.95	.91	1.91	.87
12. If my friend wants something, I let him/her have it, even if I want it too.	2.50	.83	2.43	.79
13. I work with my friend on some school or work projects.	2.31	1.06	2.21	.99
14. I do things with my friend that are quite different than what other people might do.	3.02	1.05	2.97	1.02
15. I can plan how we'll spend our time without first having to check with my friend.	2.81	1.02	2.95	.98
16. I speak up to defend my friend when other people say bad things about him/her.	1.65	.74	1.66	.72
17. I can use my friend's things without asking permission.	2.53	1.06	2.69	1.05
18. I talk to my friend about my hopes and plans for the future.	1.71	.74	1.79	.85
19. I like to do things with my friend.	1.40	.63	1.39	.62
20. When something nice happens to me, I share the experience	1.50	.72	1.53	.73

with my friend.				
21. When my friend is not around, I keep wondering where he/she is and what he/she is doing.	2.97	1.08	3.04	1.07
22. I work with my friend on some hobbies.	2.30	.87	2.34	.90
23. I know how my friend feels about things without having to be told.	2.34	.86	2.33	.92
24. I know what kind of books, hobbies and other activities my friend likes.	2.01	.80	2.01	.89
25. I will not go along with others to do anything against my friend.	1.77	.93	1.74	.87
26. I offer my friend the use of my things (like clothes, possessions, food, etc)	1.56	.72	1.55	.73
27. It bothers me to have other people come around and join in when the two of us are doing something together.	3.96	.84	3.94	.88
28. If I want my friend to do something for me, all I have to do is ask.	1.89	.77	1.91	.72
29. Whenever my friend wants to tell me about a problem, I stop what I am doing and listen for as long as my friend wants.	1.74	.77	1.76	.74
30. I like my friend.	1.27	.59	1.23	.54
31. I can be sure that my friend will help me whenever I ask for it.	1.58	.68	1.66	.72
32. When my friend is not around, I miss him/her.	2.49	.98	2.56	.94

APPENDICES

APPENDIX A

Modified QFI

Adapted from Cahalan, Cisin, & Crossley, (1969)

I. Frequency of alcohol use in last three months:

- a. ___ If you have never had an alcoholic beverage (beer, wine or liquor) in your life, check here and go to Ic.
- b. ___ If you have not had any alcoholic beverage in the LAST THREE MONTHS, check here and go on to Ic.
- c. If you checked Ia or Ib, please check the reasons for deciding not to drink (check all that apply)
1. ___ Not old enough (it's illegal)
 2. ___ Religious or moral disapproval of alcohol use
 3. ___ Health Reasons (e.g. illness, pregnancy)
 4. ___ Concern that you might have (or develop) an alcohol problem
 5. ___ Other (specify)

d. If you did not check I a, b, or c, please answer the following questions:

During the LAST THREE MONTHS (about 90 days) about ***how many days*** would you estimate that you drank at least one alcoholic beverage? (Think about weekends, parties, stressful events, celebrations with friends, meals, and so on). **Remember to estimate between 1 and 90 days:**

_____ **Days**

e. During the LAST THREE MONTHS (about 90 days), have you experienced a major change on your drinking habits?

1. ___ No, my drinking stayed the same as usual
2. ___ Yes, I quit drinking altogether
3. ___ Yes, I started drinking for the first time
4. ___ Yes, I started drinking much more than I usually do
5. ___ Yes, I started drinking much less than I usually do

II. Varieties of alcohol used in the last three months

a. Think carefully about all the times in the LAST THREE MONTHS that you drank any HARD LIQUOR (including, for example, scotch, gin, bourbon, crème de menthe, kahlua, schnapps, mixed drinks or similar beverages with high alcohol content).

1. In the last THREE MONTHS, how often did you drink HARD LIQUOR?

☐ almost everyday ☐ 5-6 days/wk ☐ 3-4 days/wk ☐ 1-2 days/wk
☐ 1-3 days/month ☐ less than once per month ☐ Never (go to II b)

2. In the last THREE MONTHS, on the average, how much HARD LIQUOR did you drink PER DAY on the days you drank?

☐ 4 or more pints ☐ 1-3 pints ☐ 8-10 shots/drinks
☐ 5-7 shots/drinks ☐ 3-4 shots/drinks ☐ 1-2 shots/drinks

b. Think carefully about all the times in the LAST THREE MONTHS that you drank any WINE (including, for example, table wine, dinner wine, dessert wine, port, or sherry).

1. In the last THREE MONTHS, how often did you drink WINE?

☐ almost everyday ☐ 5-6 days/wk ☐ 3-4 days/wk ☐ 1-2 days/wk
☐ 1-3 days/month ☐ less than once per month ☐ Never (go to II c)

2. In the last THREE MONTHS, on the average, how much WINE did you drink PER DAY on the days you drank?

☐ 5 fifths or more ☐ 3-4 fifths ☐ 2 fifths ☐ 1 fifth
☐ 16 oz (3-4 wine glasses or 2 water glasses) ☐ 8 oz (1-2 wine glasses)

c. Think carefully about all the times in the LAST THREE MONTHS that you drank any BEER or similar low alcohol beverages (including, for example, beer, ale, wine coolers, Zima, light or ice beer).

1. In the last THREE MONTHS, how often did you drink BEER?

☐ almost everyday ☐ 5-6 days/wk ☐ 3-4 days/wk ☐ 1-2 days/wk
☐ 1-3 days/month ☐ less than once per month ☐ Never (go to III)

2. In the last THREE MONTHS, on the average, how much BEER did you drink PER DAY on the days you drank?

☐ 16 or more 12 oz cans or bottles (or 6 or more quarts)
☐ 13 - 15 12 oz cans or bottles (5 - 6 quarts)
☐ 11 - 12 12 oz cans or bottles (4 - 5 quarts)
☐ 8 - 10 12 oz cans or bottles (3 - 4 quarts)
☐ 3 - 7 12 oz cans or bottles (1 - 2 quarts)
☐ 1 - 2 12 oz cans or bottles

III. Quantity of alcohol used in the last three months

a. People often drink more than one type of alcoholic beverage on a given day. In addition, their drinking often varies depending on whether it is a weekday or weekend. Therefore, we want you to think of a TYPICAL WEEKDAY on which you drank, and estimate the amounts of each of these three beverages you had to drink.

(Example: "On Thursdays, when I would get together with friends, I would drink about three 12 oz beers and two mixed drinks")

1. Estimated average drinking on a TYPICAL WEEKDAY in the LAST THREE MONTHS:

Now we want you to think of a typical WEEKEND DAY (Friday, Saturday or Sunday) on which you typically drank, and estimate your average drinking on that day.

2. Estimated average drinking on a TYPICAL WEEKEND DAY in the LAST THREE MONTHS:

3. Finally, of all the days in the last three months, what is the LARGEST AMOUNT of alcohol you have had in one 24-hour period?

go to next page

OTHER SUBSTANCE USE

How often have you used any of these psychoactive substances in the LAST THREE MONTHS?

Code frequency of use according to the following:

0 = Never

1 = 1 or 2 times in the last three months

2 = once per month

3 = once every two weeks

4 = once per week

5 = 2 - 4 times per week

6 = almost everyday

Substance

Frequency of Use

Alcohol

—

Caffeine

—

Nicotine

—

Marijuana		—
Hashish		—
Crack		—
Cocaine		—
Amphetamines (not prescribed)		—
Barbiturates (not prescribed)		—
Benzodiazepines (not prescribed)		—
Other Tranquilizers (" ")		—
Heroin		—
Other opiates (not prescribed)	—	—
Hallucinogens		—
Inhalants		—
Birth Control		—
<u>Any</u> drugs by <u>injection ever</u>		—
Current Prescribed medications:		
Amphetamines		—
Barbiturates		—
Benzodiazepines		—
Other Tranquilizers		—
Opiates (e.g. Methadone, Darvon)		—
Antidepressants (e.g. Prozac)	—	—
Antipsychotics (e.g. Haldol)		—
Antimanic (e.g. Lithium)		—
Other psychoactive medication		—
_____		—

Please continue on the next page

Do you feel you currently have a drinking or drug problem? N Y
(What substances and when did the problems first begin?)

Have you ever in the past had a problem with or been dependent on any of these substances? NY (what? and when did it first become a problem? When did it stop being a problem?)

Have you ever "needed" a drink, or a "hit" or a dose of a drug first thing in the morning?
N Y

Have you ever had a blackout (a period of time when you continued to behave normally, but didn't remember at all the next day) from alcohol or other drugs? N Y (what substances?)

Have you ever had bad "shakes" or high fevers, seizures, hallucinations, heavy sweating or other such withdrawal symptoms when you have gone without drinking or substance use for awhile? N Y

Have you ever attended a self-help group (like Alcoholics Anonymous, or Women for Sobriety, or Narcotics Anonymous) for yourself? N Y

Have you ever had treatment for an alcohol or drug problem? N Y

Do, or did, any of your family members have an alcohol or drug problem? N Y

If yes, closest relative and what kind of problem (alcohol, drugs or both?)

APPENDIX B

Intimate Friendship Scale

Sharabany, R. (1974)

Friendship Scale

This questionnaire asks about the relationship between you and your friend. Next to each statement, please put the number (1-5) that corresponds with your opinion of how well it describes your relationship with your friend. Remember, this is specifically about your friend, not your friends in general.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

___1. I stick with my friend when my friend wants to do something that other people don't want to do.

___2. I feel free to talk to my friend about almost anything.

___3. The most exciting things happen when I am with my friend and nobody else is around.

___4. I feel close to my friend.

___5. I know that whatever I tell my friend will be kept secret between us.

___6. I tell people nice things about my friend.

___7. Whenever you see me, you can be pretty sure that my friend is around, too.

___8. If my friend does something I don't like, I can always talk to him/ her about it.

___9. If know how my friend feels about his/her girlfriend/boyfriend.

___10. I can tell when my friend is worried about something.

___11. I can tell my friend when I have done things that other people do not approve of.

___12. If my friend wants something, I let him/her have it, even if I want it too.

___13. I work with my friend on some school or work projects.

- ___14. I do things with my friend that are quite different than what other people might do.
- ___15. I can plan how we'll spend our time without first having to check with my friend.
- ___16. I speak up to defend my friend when other people say bad things about him/her.
- ___17. I can use my friend's things without asking permission.
- ___18. I talk to my friend about my hopes and plans for the future.
- ___19. I like to do things with my friend.
- ___20. When something nice happens to me, I share the experience with my friend.
- ___21. When my friend is not around, I keep wondering where he/she is and what he/she is doing.
- ___22. I work with my friend on some hobbies.
- ___23. I know how my friend feels about things without having to be told.
- ___24. I know what kind of books, hobbies and other activities my friend likes.
- ___25. I will not go along with others to do anything against my friend.
- ___26. I offer my friend the use of my things (like clothes, possessions, food, etc)
- ___27. It bothers me to have other people come around and join in when the two of us are doing something together.
- ___28. If I want my friend to do something for me, all I have to do is ask.
- ___29. Whenever my friend wants to tell me about a problem, I stop what I am doing and listen for as long as my friend wants.
- ___30. I like my friend.
- ___31. I can be sure that my friend will help me whenever I ask for it.
- ___32. When my friend is not around, I miss him/her.

___33. I enjoy drinking (alcohol) with my friend.

___34. My friend's views on alcohol are very similar to mine.

35. Please list the major activities you and your friend engage in together (for example, going to the movies, going out to bars, playing baseball, studying in the library.)

APPENDIX C

Drinking Patterns Questions

1. How long have you known your friend?

_____ # of years; if less than 1 year, _____ # of months

2. During the past three months, how often have you been in contact with your friend?

_____ (1) daily
_____ (2) almost every day (about 5-6 days per week)
_____ (3) about every other day (about 3-4 days per week)
_____ (4) weekly (about 1-2 days per week)
_____ (5) biweekly (about once every other week)
_____ (6) monthly (about once or twice a month)
_____ (7) less than monthly (once or twice in past three months)

3. During the past month (i.e., the past 30 days), on how many occasions did you and your friend consume alcohol (e.g. beer, wine, or hard liquor) together? Please provide your best estimate. Remember to think about recent parties, social gatherings, and any school based activities that involved drinking.

_____ # of occasions spent drinking together

4. During the past month (i.e., the past 30 days), on how many occasions did you and your friend use any illicit drugs together? Please provide your best estimate. Remember to think about recent parties, and social gatherings that involved any drug use such as smoking pot, using hallucinogens or party drugs, and so on.

_____ # of occasions spent using drugs together

5. During the past month (i.e., the past 30 days), on how many occasions did you and your friend smoke cigarettes together?

_____ # of occasions spent smoking together

APPENDIX D

Drinking Motives Questionnaire

Cooper, M.L. (1994)

Drinking Motives Questionnaire

Here is a list of reasons people give for drinking alcoholic beverages. Using the response categories below, please indicate how often YOU drink for each of the following reasons. There are no right or wrong answers to these questions. We just want to know about the reasons why you usually drink when you do. *If you do not drink please write that you do not drink and move to the "Social Networks and College" Questions*

- 1 = Never
- 2 = Almost Never
- 3 = Some of the time
- 4 = About half of the time
- 5 = Most of the time
- 6. Almost always

_____1. How often do you drink because it's exciting?

_____2. How often do you drink to celebrate a special occasion with friends?

_____3. How often do you drink because it helps you enjoy a party?

_____4. How often do you drink to get high?

_____5. How often do you drink so that others won't kid you about not drinking?

_____6. How often do you drink because it's fun?

_____7. How often do you drink because it helps you when you feel depressed or nervous?

_____8. How often do you drink because it improves parties and celebrations?

_____9. How often do you drink because it makes social gatherings more fun?

_____10. How often do you drink to cheer up when you're in a bad mood?

- ____11. How often do you drink because it gives you a pleasant feeling?
- ____12. How often do you drink to forget about your problems?
- ____13. How often do you drink because your friends pressure you to drink?
- ____14. How often would you say you drink to fit in with a group you like?
- ____15. How often do you drink because you like the feeling?
- ____16. How often do you drink to be liked?
- ____17. How often do you drink to forget your worries?
- ____18. How often do you drink because you feel more self-confident or sure of yourself?
- ____19. How often would you say you drink to be sociable?
- ____20. How often do you drink so you won't feel left out?

